5 19. (Twice Amended) A diagnostic kit for use in detecting antibodies which specifically bind SmD antigens said kit comprising at least one peptide according to claim 1, with said peptide optionally bound to a solid support.

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REMARKS

I. Status of the claims and support for the amendment

Claim 22 is cancelled.

Claims 1, 2, and 19 are amended.

Claims 1-3, 5, 19-21, 23, and 24 are currently pending. A copy of all pending claims, including marked up versions of the amended claims is attached hereto.

Support for the amendment may be found in the claims, as originally filed, and in the specification at pages 2-4, 11, 15, and 16. Furthermore, Applicant makes these amendments so as to facilitate expeditious allowance of the case and, consequently, Applicant hereby expressly reserves the right to file one or more divisional applications directed to any cancelled material.

II. Objection to claim 2

Claim 2 is objected to for referring to Table 4. Applicant responds as follows.

As amended claim 2 now explicitly incorporates the contents of Table 4 and is, therefore, believed to meet all formal claim requirements. Consequently, Applicant respectfully requests that objection to this claim be withdrawn.

III. Rejection under 35 U.S.C. §102

Claims 1-2, 19-20, and 23-24 are rejected under 35 U.S.C. §102(e) as allegedly being anticipated by U.S. Patent 5,945,105 to Heipe *et al.* (hereinafter "Heipe"). The Examiner has alleged that Heipe discloses:

> peptides of 35 to 45 amino acids comprising SEQ ID NO:1 and SEQ ID NO:4 as well as kits containing said peptides bound to a solid support (see column 4, lines 59-67 to column 6, lines 51) and mutants and **variants** thereof. Since peptides

> with differing methylation patterns would be considered a variants [sic] of the disclosed peptides, Heipe et al. anticipates all the limitations of the claimed invention.

(*See* page 5 of the instant Office Action, emphasis in original). Applicant respectfully traverses.

The courts have set forth the following standards for what must be found in a reference in order to meet the requirements to establish anticipation. The courts have stated that:

> [f]or a prior art reference to anticipate a claim, the reference must disclose each and every element of the claim with sufficient clarity to prove its existence in the prior art. *See in re Spada*, 911 F.2d 705, 708, 15 USPQ 2d 1655, 1657 (Fed. Cir. 1990). ("[T]he [prior art] reference must describe the applicant's claimed invention sufficiently to have placed a person of ordinary skill in the field of the invention in possession of it." (citations omitted)). Although this disclosure requirement presupposes the knowledge of one skilled in the art of the claimed invention, that presumed knowledge does not grant a license to read into the prior art reference teachings that art not there.

Motorola, Inc. v. Interdigital Technology Corp., 43 USPQ 2d 1481, 1490 (Fed. Cir. 1997) (emphasis added). The meaning of this holding is made even clearer, when read in light of the courts ruling in *Scripps v. Genentech*, wherein they unequivocally stated that

> Invalidity for anticipation requires that all of the elements and limitations of the claim are found within a single prior art reference....There must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention.

Scripps Clinic & Research Foundation v. Genentech Inc., 18 USPQ 2d 1001, 1010 (Fed. Cir. 1991) (emphasis added). From these two holdings it is clear that in order to anticipate a claim a cited reference must explicitly recite all of the claim's limitations or as stated in the citation from *Scripps*, "there must be no difference between the claimed invention and the reference disclosure. . . ." *Id.* The Applicant asserts that, in violation of the standards set forth in *Scripps* and in *Motorola* there is clearly a difference between Heipe and the instant claims. Firstly, Heipe explicitly teaches what is meant by the terms "mutants and variants." Specifically, Heipe recites that:

> [p]referably the peptides concerned are:. . . In particular preferred is the peptide of 37 amino acids with the structure...and its mutants and variants, respectively, namely with a structure which is changed at one or several arbitrary positions by exchange of amino acids or, respectively, **with a structure which is changed at one or several arbitrary positions by elimination of amino acids**."

(*See* Heipe, paragraph bridging columns 4 and 5, emphasis added). When the term "mutants and variants" is read in context, Applicant asserts Heipe clearly teaches that variant peptides as used in the Heipe patent refers only to those peptides that are identical to the disclosed peptide sequence, except that they have one or more amino acids deleted at various positions. At no place in the specification does it teach or suggest that the peptides can or should be modified by methylation, much less by specific methylation or dimethylation of arginine residues, as instantly claimed.

Furthermore, Heipe specifically teaches that the disclosed peptides are produced by chemical synthesis (Heipe, column 5, lines 26-29). Methylating of these chemically synthesized peptides would require a separate step, which is not taught or suggested in Heipe.

For all of the foregoing reasons, Applicant submits that Heipe does not meet the requirements to establish anticipation of the instantly pending claims. Consequently, Applicant contends that the rejection of the claims, as being anticipated by Heipe, is overcome and respectfully requests that this rejection be withdrawn.

IV. Rejection under 35 U.S.C. §112

A. Claim 2 is rejected under 35 U.S.C. § 112 as allegedly not being enabled by the specification. The Examiner has alleged that

> the specification fails to define what is meant by an "analog". The specification is silent on what percentage of divergence is required to be considered an analog and at what point does an "analog" become totally unrelated. Applicant fails to disclose what biochemical/immunological properties must be present in order for a peptide to be considered an "analog".

Applicant respectfully traverses.

As noted in the previous Response, the term "analog" is used to refer to any "peptide having an amino acid residue sequence substantially identical to a sequence specifically shown...in which one or more residues have been conservatively substituted with a biologically equivalent residue." (Specification page 15, lines 8-12). As amended claim 2 now specifically recites all possible suitable amino acid substitutions. Thus, suitable amino acid substitutions are clearly defined and, therefore, are fully enabled. The Examiner states that the "specification is silent on what percentage of divergence is required" in order for a peptide to be considered "totally unrelated." In response, Applicant notes that as currently amended the claims recite that the claimed peptides are limited to those which "comprise at least one dimer of XG, wherein X stands for a N^G-mono- or N^GN^G-dimethylated arginine or $N^GN'^G$ dimethylated arginine" and which are "specifically recognized by antibodies present in patients with systemic lupus erythematosus (SLE), and where in said antibodies are specifically associated with SLE." Thus, a peptide would fall within the scope of the instant claims if it was specifically recognized by antibodies which are associated with the presence of SLE. Applicant believes that recitation of a specific percentage is not necessary nor desirable. The criteria which must be met is not a specific percentage of identity, rather it is the ability, as constrained by the other claim parameters to specifically bind to antibodies which are specifically associated with SLE. The percentage divergence which results in failure to bind will likely vary from peptide to peptide and is, therefore, not relevant.

On page 4 of the instant Office Action, referring to the possible interaction between a claimed peptide analog and an antibody, the Examiner recited that "the limitation that [the peptide] must react with **an** antibody from one of the recited patients does not enable one of skill in the art to make and use the claimed invention. The substitution could allow the peptide to the

peptide to react with an antibody that isn't even remotely associated with the disease" (emphasis in the original). Applicant asserts that this portion of the rejection is also overcome by limitation of the claims to peptides recognized by antibodies which are specific to SLE.

In summary, Applicant believes that, as currently amended, claim 2 is fully defined so as to enable one of skill in the art to make and use the claimed invention. The artisan of ordinary skill would be able to determine, without undue experimentation, which peptide bind to antibodies which are specific for SLE. Accordingly, Applicant believes that the rejection of claim 2 has been overcome and respectfully requests that this rejection be withdrawn.

B. Claims 19-22 are rejected under 35 U.S.C. § 112 as allegedly note being enabled by the specification. The Examiner has alleged that the:

> specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims...the specification fails to provide any correlation between the presence of anti-Sm-D1 antibodies and the ability to diagnose any autoimmune diseases. Moreover, the specification does not provide guidance on how one would differentiate between the various autoimmune diseases.

Applicant respectfully traverses.

As currently amended, the pending claims (claim 22 has been cancelled rendering rejection of that claim moot) are directed to a diagnostic kit for the detecting anti-Sm-D antibodies. As noted in the specification, "[o]ften, correct diagnosis [of SLE] will depend on the interpretation of many separate tests and symptoms." (Specification, page 2, lines 7-8). Included among those tests useful in diagnosis of this autoimmune disease is a test for anti-Sm antibodies, with anti-SmD being regarded as the most specific autoantigen for Sm. (*See*, Specification, page 2, lines 9-14). Thus, the test for the presence of anti-Sm antibodies is, in fact, a diagnostic test routinely performed in order to diagnose SLE. Consequently, applicant asserts that the Examiner's rejection of claims 19-22 is improper. Nevertheless, in order to

facilitate their allowance the claims have been amended to recite "a diagnostic kit for detecting antibodies which bind SmD antigens. . . ." Applicant believes this limitation to be fully supported and enabled by the Specification, as originally filed.

V. Conclusion

In view of the foregoing Amendment and Remarks all objections to and rejections of the instantly pending claims are believed to be overcome. Consequently, Applicant believes that the instant case now in condition for immediate allowance.

The Examiner is invited to contact the undersigned patent agent at (713) 787-1589 with any questions, comments or suggestions relating to the referenced patent application.

Respectfully submitted,

Matthew L. Madsen
Reg. No. 45,594
Agent for Assignee
INNOGENETICS N.V.

HOWREY SIMON ARNOLD & WHITE, LLP
750 Bering Drive
Houston, Texas 77057-2198
(713) 787-1400

Date: August 15, 2001

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